

PATENT COOPERATION TREATY

PCT

PCT Application
PCT/JP2003/000956

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

956

Applicant's or agent's file reference 663630	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/JP2003/000956	International filing date (day/month/year) 31 January 2003 (31.01.2003)	Priority date (day/month/year) 08 February 2002 (08.02.2002)
International Patent Classification (IPC) or national classification and IPC C07D 301/32, 303/04, B01J 23/00, 23/28		
Applicant SUMITOMO CHEMICAL COMPANY, LIMITED		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☒ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 12 August 2003 (12.08.2003)	Date of completion of this report 14 January 2004 (14.01.2004)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP2003/000956

I. Basis of the report

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed
- ☐ the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the claims:
pages _____, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the drawings:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

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V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-5	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1-5	NO
Industrial applicability (IA)	Claims	1-5	YES
	Claims		NO

2. Citations and explanations

The following documents are cited in the international search report:

Document 1: JP 3-236381 A
Document 2: JP 11-349579 A
Document 3: US 5780655 A
Document 4: US 6054407 A
Document 5: US 5086189 A

Document 1 discloses a method to prepare an epoxide compound by means of hydrogen peroxide and a catalyst comprising phosphomolybdic acid, phosphotungstic acid and a tertiary amine.

Document 2 discloses a method to prepare an epoxide compound using a compound resulting from having a tungsten compound, a tertiary amine and phosphoric acid act on hydrogen peroxide.

Document 3 discloses a method to prepare an epoxide compound from various olefins using phosphate stable tungsten peroxide.

Document 4 discloses a method to prepare an epoxide compound from an olefin, using tungsten peroxide obtained

by reacting hydrogen peroxide with tungsten trioxide, along with a phosphanoxide and a tertiary amine.

Document 5 discloses a method to prepare an epoxide compound from an olefin using hydrogen peroxide in a system that contains a catalyst and a base. The document also discloses an example of preparing an epoxide compound using hydrogen peroxide in the presence of manganese oxide and pyridine, among others.

The method to prepare a propylene oxide set forth in claims 1-5 is not disclosed in any of the documents cited in the international search report. Therefore, it is novel as defined by PCT Article 33(2).

However, as disclosed in documents 1 and 2, methods to prepare an epoxide compound from an olefin using a tungsten compound, phosphoric acid, a tertiary amine and hydrogen peroxide are disclosed. Therefore, it is obvious to a person skilled in the art to apply said methods to prepare an epoxide compound from propylene, which is a type of olefin. Therefore, the method to prepare a propylene oxide set forth in claims 1-5 does not involve an inventive step as defined by PCT Article 33(3).

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VI. Certain documents cited

1. Certain published documents (Rule 70.10)

<u>Application No. Patent No.</u>	<u>Publication date (day/month/year)</u>	<u>Filing date (day/month/year)</u>	<u>Priority date (valid claim) (day/month/year)</u>
EX JP 2002-201147 A	16 July 2002 (16.07.2002)	31 October 2001 (31.10.2001)	06 November 2000 (06.11.2000)

2. Non-written disclosures (Rule 70.9)

<u>Kind of non-written disclosure</u>	<u>Date of non-written disclosure (day/month/year)</u>	<u>Date of written disclosure referring to non-written disclosure (day/month/year)</u>
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